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Art and Nature.

WE spoke last week of the way in which Nature's suggestions are often disregarded in the treatment of our private pleasure-grounds, when a respect for these suggestions would furnish an endless diversity of beautiful effects instead of the monotonous repetition of lawns, flower-beds and popular plants, all arranged after one fashion and without any relation to the original features of any given site. One reason for this unfortunate state of things may be found in the fact that most people seem to feel that there is an eternal opposition between the terms Nature and Art, and between the qualities they typify as appealing to our admiration and love. Of course, these terms are, in a sense, properly used in contrast. The highest work of art lacks certain qualities which delight the eye and kindle the imagination in a work of Nature; and, on the other hand, the most impressive natural object lacks that expression of human emotion and intelligence, that evidence of difficulties overcome and ideals conceived and achieved, which contribute so powerfully to the interest and charm of a successful work of art. The artist cannot really imitate Nature any more than Nature can copy Art; and until this fact is recognized we cannot appreciate the peculiar charm of either natural or artistic beauty. But Nature and Art are constantly conceived of as hostile to each other in a more radical way than this. Many people say, "We are lovers of Nature, and, therefore, we find those things most beautiful which the hand of man has not touched, or in which the traces of his hand are least obtrusive." These people think that a painter should copy as closely as possible some bit of nature, changing nothing, omitting nothing, emphasizing nothing, but trying to be as accurately photographic as possible, and they resent as an impertinence to themselves and an insult to Nature any suggestion of the artist that he saw more in the scene before him than they might, or saw it differently, or that he wished to press upon their attention some features more strongly than others. They wish him to be a literal translator, while the true artist is an interpreter who transmutes and perhaps glorifies a scene by infusing into it some of the poetry which inspires him. These same lovers of nature insist on a slavishly accurate reproduction of nature by the landscape-gardener and deny his right to use the transforming power of his imagination in constructing his scenery.

On the other hand, many people say, "We are lovers of Art, and, therefore, the less an artist shows dependence upon Nature, the better he pleases us"; or, if they do not deliberately say this, they unconsciously act upon it. They are willing that a painter shall dispense with good drawing, natural schemes of color, and logical schemes of light and shade, if by some striking result he can convince them that he has "originality"; and they call his products "artistic" just in proportion as they diverge most palpably from the models offered by the natural world. Canons of taste like this in the domain of gardening have controlled the design of our country places more frequently than those of the opposite extreme, for we have reached a stage of mental development when we all wish to be considered artistic; and too many of us like the bold display of expenditure for its own sake, and "artistic" pleasure-grounds give a better chance for this display than pleasure-grounds adapted more closely to the suggestion of Nature.

This belief, that to be artistic we must show little regard for Nature, is seen in our excessive love for trees, shrubs and flowers which are novel or particularly showy or eccentric in shape or color, and also in the invention of novel forms and color combinations for the almost invariably ugly clipped flower-bed. This radical mistake of thinking that what is artistic must be unnatural, or, at least, non-natural, has not yet led the American people to an overweening love for absolutely formal gardening; for the traditions of our English ancestry are strong, and we think we have a true preference for landscape-gardening. Our belief that we cannot be artistic without being unnatural is not self-confessed, as it was in France in the time of Louis Quatorze. Like many other beliefs in respect to art, it is a sort of groping desire for we know not exactly what. It would probably declare itself to be a desire to blend the beauties of Nature and of Art, which is precisely what it ought to be; but when analyzed by its results it shows very clearly as a desire to be "artistic" in defiance of Nature. And it has become as conventional in its manifestations as it is unintelligent in the crude feeling upon which these are based.

Not even the formal gardens of the seventeenth century were more alike in essence and in treatment than are most of our American pleasure-grounds. This one fact alone should show their owners that they are on a wrong track; for the key-note of landscape-gardening, if the term means anything at all, must be perpetual variety between one work and another. No two natural landscapes are alike, and within a very few miles we always find many which are surprisingly unlike in radical character and general effect as well as in details. Therefore, an art which is based upon the study of Nature cannot be going right when its products all bear a close family likeness to each other, and this not only as regards a single stretch of country-side, but as regards regions that lie far apart and are wholly different in climate, geological conformation and native vegetation. Expedients which are right for one place on the island of Mount Desert would most likely not be quite right for a neighboring place; and certainly they would not be right for one on the banks of the Hudson, in the mountains of North Carolina, on a stretch of western prairie or the coasts of the Pacific Ocean. Yet far and wide we find the same ideals, the same expedients; and the greater the natural beauty of the site the more apt are these ideals and expedients to be wrong. For the essence of all natural beauty is distinctness of character; and the more individual this character is, the more charming we are apt to find it, while the more certainly it is ruined by the unintelligent application of conventional and stereotyped methods of "improvement."

The true scheme for an artist in any branch is to follow out Nature's ideals and suggestions, showing his own indi-

viduality and his own creative imagination by intensifying the character she presents—ennobling, purifying, glorifying her suggestions. The artist on canvas may choose what he wishes to do at any given time and place, provided that, once his theme is selected, he keeps it clearly in mind and transgresses no essential truth in explaining it. But the artist in landscape must consent, at any given place, to do what Nature then and there prescribes, or, at least, permits. To try to wipe out her work is futile; to try to conceal its character and supply a new one can result merely in an abortion which is admirable neither to the genuine lover of Nature nor the genuine lover of Art. This is true even when we think of a real artist at work; and if we think how much more true it must be when ignorant owners, assisted by men who may grow plants well, but have no knowledge whatever of art, strive to do artists' work, then we can comprehend why so few American country places, large or small, give any pleasure to intelligent observers. When we really understand in what points Art stands in contrast to Nature, and in how far it must rest upon Nature and get its inspiration from her, then we shall realize that lawns and flower-beds are appropriate, and therefore artistic, in some situations, absolutely formal gardens in others, and almost absolute wildness in others; and that between these types, as within each of them, an infinite number of beautiful gardening schemes may be evolved—infinite because the beauty of Nature varies perpetually—and if we search over the whole surface of our wide and fruitful land we can find no scene which is not distinct from every other in its essence, its character and its expression.

Flowering and Fertilization of the Native Plum.

THE uncertainty of fruitage in our native Plums is well known by all who have attempted their cultivation. A full bloom of most other fruits is usually followed by at least a fair setting of fruit, but with the native Plums—I use the plural number because there are several species—bloom on the average tree is no certain indication that any fruit will form. It is not my purpose to note the many contingencies that lie between a crop of well-fertilized ovaries on the Plum-tree and the delicious mature fruit that attracts the eye and tempts the palate, but rather to confine myself to contingencies that lie between the opening of the petals and the fertilization of the ovary. In this work I shall consider some of the reasons for the frequent failures in fertilization that have been suggested by others, supplemented, so far as possible, by personal observation upon our own Plum-trees.

First, I may mention that in the varieties of Plum of which I have examined the flowers, thirty-four in number, those belonging to our native species have decidely more slender styles and smaller stigmas than those of the European Plum, Prunus domestica, and I have observed this season that the slender styles of our native varieties were more often broken or bent by driving rain than those of the Domestica varieties. I should add, however, that I have examined but few of the varieties of P. domestica in this particular. I infer that a severe rain-storm, during full bloom, would work much greater harm to our native than to the European varieties.

A lack of pollen has sometimes been ascribed as a reason for infertility in our native Plums. I cannot say that this never occurs, but all of the varieties growing at the Wisconsin Experiment Station that bloomed this season appeared to produce abundant pollen. When we consider that all of the anthers in the same flower rarely mature at the same time, and that the flowers on a given tree usually have a range of some days in their time of opening, it hardly seems probable that, where abundant pollen is produced, a total failure in pollination could result, even in unfavorable weather. I suspect that a rain-storm occurring when the trees are in full bloom, if not sufficiently severe to destroy the styles, would promote self-pollination, for, as I have observed, rain tends to dislocate the stamens, and often brings the anthers directly in contact with the stigma.

Imperfect pistils, or an absence of pistils, has also been offered as a reason for infertility in native Plums. Unquestionably this defect sometimes occurs. Professor Bailey mentions* a wild Plum-tree of his acquaintance that bears flowers without pistils, also that, in the season of 1892, only about one flower in twelve of the Newman Plum at Cornell University had a perfect pistil. I have made careful observations on this point in our own Plum-trees during the present season and find a marked difference in varieties as to the percentage of perfect pistils. I have tabulated the results of my observations as follows:

VARIETY.	Number of flowers examined.	Number of perfect pistils.	Number of flowers without pistils.	Number of abortive pistils.	Number of pistils that had been destroyed.	Per cent. of perfect pistils.
De Soto	116	107	1	3	5	92.
Forest Garden	109	106	0	0	3	97.
Forest Rose	113	108	0	2	3	95.
Homestead	59	49	9	1	0	81.
Le Duc	116	87	5	12	12	75.
Maquoketa	134	127	2	1	4	95.
Mariana	247	154	62	20	11	62.
Miner	105	101	1	0	3	96.
Moore's Arctic	127	121	3	1	2	95.
Moreman	104	30	73	1	0	29.
Ocheda	113	104	3	4	2	92.
Pottawattamie	104	100	0	3	1	96.
Quaker	106	100	2	3	1	94.
Robinson	104	65	37	1	1	62 5
Seedling from German Prune	101	84	1	8	8	83.
Seedling No. 3, Gale	105	87	8	9	1	83.
Seedling from Sparta	106	72	4	18	12	68.
Smith's Red	122	112	3	3	4	92.
White Nicholas	100	100	0	0	0	1 0
Wild Goose	123	76	35	..	12	62.
Wolf	108	98	10	0	0	91.
Wyant	115	97	15	3	0	84.

I endeavored to ascertain if the proportion of the flowers that formed fruits in the different varieties corresponds with the percentage of perfect flowers. At first I concluded that there was such a correspondence. The number of embryo fruits that appeared after the falling of the petals was unquestionably greater, as compared with the number of blossoms, on the trees that had a high percentage of perfect flowers than on those in which the percentage of perfect flowers was low. But a new factor entered here that I do not understand. After the miniature plums had attained the size of an apple-seed, or a little larger, a large proportion of them dropped from some of the trees that had shown a high percentage of perfect flowers. This shows that another influence affected the fertilization besides the question of perfect pistils. We had a cold period about this time, and it is possible, as Mr. R. P. Speer has suggested,† that the low temperature prevented the formation of the pollen tube. I observed, also, that the after failure of the fruits was sometimes most marked in varieties that apparently possessed the most robust pistils. The White Nicholas, a Russian variety of the Prunus domestica species, was the only variety I examined that showed 100 per cent. of perfect pistils, and I noted that the styles and stigmas of this variety were especially large, yet the number of fruits on this tree at this time is very small, and the trouble is not from the curculio. The miniature fruits turned yellow and dropped when about the size of an apple-seed.

It is of interest that of the varieties that I have examined, the four showing the smallest percentage of perfect flowers, Moreman, Wild Goose, Robinson and Mariana, are all of some other species than Prunus Americana; also, that the varieties of the European Plum that I have examined have all shown a high percentage of perfect flowers. We have several varieties of the latter species that failed to bloom this year, possibly because their flower-buds were destroyed by cold.

From the testimony of others, I conclude that the percentage of imperfect flowers in a given variety often varies in different seasons. Professor Bailey, in the bulletin above cited, says, "Imperfect flowers are occasionally observed, but they are apparently peculiarities of individual trees or particular seasons." The observations of Mr. O. M. Lord, of Minnesota City, Minnesota, are especially valuable on this point. Mr. Lord wrote me, under date of May 24th, 1894, "I began to study Plum-blossoms a few years ago to see if I could get any light on the non-bearing habits of some varieties, and also to see if

*Bulletin No. 38, Cornell University Experiment Station.

†Bulletin No. 4, Iowa Agricultural Experiment Station.

sufficient data could be gathered to show that any varieties are practically dicœcious. . . . I have found some groups entirely without pistils for a series of years, and last year I was surprised to find no pistils on my Gaylord trees that had never refused to bear before. They are loaded again this year." In the last Report of the Minnesota Horticultural Society, Mr. Lord observes further, "Nearly all native Plums produce an abundance of pollen, but some varieties are more or less deficient in stigmas every year, and in some years are entirely deficient. This habit is, I believe, peculiar to some varieties, not only when indigenous or growing wild, but when transferred to other localities, the habit is intensified, so as to produce imperfect stigmas, or, perhaps, none at all. . . . I have a group of trees that blossom profusely every year that never has produced any fruit, growing within a few rods of another group that has borne nearly every year for forty years. The blossoms of the first-named group bear no stigmas, many of the blossoms not even having the rudiments of one. But I was greatly surprised this year to find no stigmas in the blossoms of some kinds that have borne fruit for several years in succession until this year, from which I conclude that there is a wide field in this direction for experiment and investigation."

Certain varieties, as the Wild Goose and Mariana Plum, that are productive further south, are rarely fertile in Wisconsin, and these showed a low percentage of perfect flowers in our Plum orchard. This suggests that the failure of pistils may be due, at least in some varieties, to severity of climate. I think it possible that poverty of the soil and overbearing may in some cases cause sterility in Plum-blossoms. Mr. Waite, in his investigation of the fertilization of Pear-flowers, came to the conclusion that this is true in the Pear. It is also possible that partial destruction of the foliage by insects or fungi during the growing season may sometimes cause sterility of the flowers, for while a checking of growth in a moderate degree doubtless tends to the production of flower-buds, an excessive check might so impoverish the tree that there would not be sufficient stored food to develop fruit.

In conclusion, I wish to call attention to the advantages that are likely to result from hybrids between the hardier varieties of the European Plum and the more prolific varieties of Prunus Americana. If we can combine the robust pistils of the former species with the cold-enduring qualities of the latter, we may hope for annual crops. Of the European varieties in our own Plum orchard Moore's Arctic appears to be the hardiest, and of the Americana sorts, Forest Garden is now carrying the largest crop.

Madison, Wis. *E. S. Goff.*

Flora of Central Thibet.

THE following account of this interesting flora is taken from a late number of the *Kew Bulletin :*

Previous to Colonel Przewalsky's explorations little was known of the flora of the vast country lying immediately north of the Himalayas, generally known as Thibet; and only portions of his discoveries have been published. Sir Joseph Hooker penetrated the fringe of this country on the Sikkim frontier; Dr. T. Thomson, Lieutenant-General Strachey and Mr. J. E. Winterbottom botanized the extreme west. That was upward of forty years ago. Since then various other travelers have entered the country for short distances at various points, and the rich flora of the extreme east has been made known through the extensive collections sent to Europe by Father David, Mr. Pratt, Prince Henry of Orleans and others.

Captain Bower's journey across Thibet from west to east, in latitudes between thirty-four and thirty degrees, and Mr. Woodville Rockhill's journeys from north to south, in about the longitude of Lhassa, are so well known that it is only necessary to mention them in connection with the plants connected. Surgeon-Captain W. G. Thorold accompanied Captain Bower and made a collection of all the plants found growing at elevations between 15,000 and 19,000 feet. Mr. Rockhill also collected, and his plants, as well as Mr. Thorold's, were presented to Kew, as announced in the *Kew Bulletin* (1893, p. 369).

These collections, together with a smaller one made by Captain H. P. Picot, of the Indian Staff Corps, in the Kuen-lun plains, form the subject of a paper read by Mr. W. Botting Hemsley, before the Linnæan Society, and published in the Society's *Journal* (vol. xxx., pp. 101–140). The number of novelties is not great, but about thirty per cent. only extend to the Himalayas. The chief interest of the collection, however, is in the nature and general distribution of the plants forming this exceedingly meagre vegetation, the remains, probably, of a former much richer flora. Judging from the fact that many of the species are found in the most widely separated parts of the country, even those that are not known to occur outside of Thibet, there must be very few local species. A large majority of the plants scarcely lift themselves above the surface of the soil, the characteristic type being a rosette of small leaves closely appressed to the ground with a central sessile inflorescence. With regard to altitude, fifty-seven, or just half, of Thorold's plants were collected between 17,000 and 18,000 feet, five between 18,000 and 19,000, and one, Saussurea tridactyla, at 19,000 feet.

Foreign Correspondence.

London Letter.

ORCHIDS were the principal feature among the exhibits at the last meeting of the Royal Horticultural Society, and a lecture by Mr. G. Nicholson, Curator, Royal Gardens, Kew, on hardy flowering trees and shrubs served to attract a large attendance. Mr. Nicholson is the acknowledged authority on all matters concerning cultivated trees and shrubs, his long experience at Kew having afforded him exceptional opportunities, which he has made the most of. His lecture was limited to a consideration of the rarer trees and shrubs which deserve to become popular in gardens, and which may be seen in the Kew collection. We have had three lectures this year on much the same subject, those by Mr. J. Veitch on the trees and shrubs of Japan, and by Monsieur Vilmorin on the Harvard Arboretum, being of the same tenor as Mr. Nicholson's. The Society has urged exhibitors to send to the meetings this year examples of all interesting and rare hardy trees and shrubs, and as these have flowered exceptionally well, some good shows have been the result. Kew has been to the fore in sending specimens of the rarer hardy plants, while nurserymen who are interested have contributed collections comprising numerous rare and promising things. The meetings of the Society are now very popular, being attended by many who are professionally interested, as well as by most of the wealthy amateurs of the art of horticulture within easy reach of London. No better means could be devised for the development of horticulture than these periodical meetings, with the exhibitions of all that is new and interesting among cultivated plants and lectures by representative men.

NEW ORCHIDS.—No less than six first-class certificates, ten botanical certificates and twelve awards of merit were given by the Orchid Committee to plants shown last Tuesday, evidence, if that were needed, of the extraordinary amount of attention these plants continue to receive in England. The most noteworthy of those certificated were three hybrid Masdevallias, shown by Messrs. J. Veitch & Sons: M. Asmodei, a hybrid between M. Reichenbachii and M. Chelsoni, and pretty enough in the color and form of its flowers to find general favor; M. glaphyrantha, a hybrid between M. Barlœana and M. infracta, with purplish flowers, too dull, I am afraid, to please many tastes; M. Parlatoreana, a hybrid between M. Veitchii and M. Barlœana, was raised by Messrs. Veitch and distributed by them several years ago, but it had not before received a certificate. Hybrid Masdevallias are now fairly numerous, they are all interesting, especially to the botanist, but I question if any of them is an improvement in a horticultural sense on its parents.

DENDROBIUM GUIBERTII.—Messrs. F. Sander & Co. showed this form of D. Griffithianum. It has large golden-yellow flowers, suggesting a small-bulbed form of D. densiflorum.

AËRIDES MACULOSUM SCHRŒDERI.—This was shown by Sir Trevor Lawrence, and, although not new, was considered rare and distinct enough to deserve a first-class certificate. It bore a four-branched spike of large lilac-rose and purple flowers.

CATTLEYA MOSSIÆ ALBA.—A very superior form of this Cattleya was shown by Mr. H. T. Pitt, which would be C. Wagneri were it not for a tinge of purple on the front lobe of the labellum.

ODONTOGLOSSUM CRISPUM.—We have already scores of

named varieties of this Orchid, and they continue to come, no less than four new ones being certificated last Tuesday. The names of some of them, however, call for comment. Surely it is possible to give complimentary names without adding a string of Christian names like the following: Odontoglossum crispum, var. Miss Florence May Bovill, and O. crispum, var. Mademoiselle Cécile de Rochfort. If this kind of thing goes on, garden nomenclature will become ridiculous. I am heathen enough to not care to hear the whole string of names that some lady's godparents gave her rattled off when I want to know the distinctive name of an Orchid. Complimentary names are becoming a nuisance. Another newly certificated plant was named Odontoglossum luteo-purpureum sceptrum leopardinum!

Cypripedium Sargentianum, which was introduced last year by Messrs. F. Sander & Co., was shown in flower last Tuesday. It is one of the Selenipediums and comes very near S. Lindleyanum. It has long strap-shaped, bright green leaves and tall scapes bearing greenish-yellow flowers with red-brown lines and blotches.

Houlletia Lansbergii.—This was shown with an erect scape of creamy yellow flowers, by Messrs. H. Low & Co., who also sent a collection of varieties of Cypripedium bellatulum showing considerable range of color-tints.

Phajus Owenianus.—This beautiful hybrid, raised by Messrs. F. Sander & Co., was shown by them. I noted and briefly described this plant in my letter on the Temple Show, a few weeks ago. Last Tuesday it won the premier award for the best new hybrid Orchid of 1894. The same firm sent fine examples of the now rare but exceedingly beautiful Zygopetalum Klabochorum and Z. Piscatorei, plants which would find a great deal more favor if they were less difficult to cultivate.

Certificates were awarded to the following, and, although none is new, they are all first-rate plants which deserve to be better known:

Arisæma fimbriata, one of the prettiest of the Malayan species. It has a large hooded spathe, white, with purple lines, and a long drooping spadix, remarkable in being clothed with long, fleshy, bristle-like hairs. The leaves are trifoliate and rich green. This species requires tropical treatment, thriving well with Caladiums, whereas A. speciosum and the Himalayan species generally do best in a greenhouse. A. præcox, the Japanese species, is nearly hardy here. It is a useful plant for a bed in a cool conservatory.

Pteris ludens.—This is one of the most striking of that group of the genus represented by P. sagittata. It has broad deep green fronds a foot across at the base, and is one of the best Ferns introduced by Mr. Bull. It has been in cultivation many years, but has only now received a certificate.

Osmunda javanica is a handsome greenhouse Fern with erect, bipinnate, rich green fronds, which has been in cultivation at Kew for the last twenty years, and is used to mix with flowering plants in the conservatory.

Lygodium dichotomum polydactylon is a pretty variety of one of the best of the Lygodiums which are grown up pillars, etc., in tropical stoves. It differs from the type in having the pinnæ elegantly cut into several divisions. It worthily received a first-class certificate.

Sarracenia Willisi is a hybrid between S. melanorrhoda and S. Courtii, both of which are of hybrid origin. It is a handsome free-growing plant with pitchers about a foot long, at first green, ripening to rich reddish brown.

Fagus rotundifolia is a pyramidal Beech, probably only a form of F. sylvatica, with very small, round, bright green leaves. It was shown by Mr. Jackman, of Woking, and obtained a first-class certificate.

Widdringtonia Whytei.—This is a new Conifer which has lately been introduced from Nyassaland to Kew by means of seeds brought home by Mr. Whyte, who collected specimens of animals and plants in that region in 1891 for the British Museum. The seedlings are now six inches high, and from their behavior they are likely to do well under cultivation. The genus is closely related to Callitris, also African, and of which several species are in cultivation. W. Whytei is, according to Mr. Whyte, a large tree, specimens measured by him being 140 feet long, with a clear straight stem ninety feet long and nearly six feet in diameter at the base. The cones are smaller than a chestnut, and of the same shape—longer than broad. The foliage is Juniper-like, and the wood is dull reddish white. There were forests of this Widdringtonia at high elevations on Mount Milanji, an account of whose plants is published in vol. iv. of the *Transactions of the Linnæan Society*.

Omar Khayyâm's Rose.—A Rose now in flower at Kew, and which was raised from seeds sown ten years ago, has excited considerable interest on account of its doubtful identity with any Rose in cultivation, and also from the fact that it was the child of a tree found growing on the grave of Omar Khayyâm, the Persian poet, who lived in the eleventh century, and who, when he died, "desired that his grave might be where the wind would scatter rose-leaves over it." Mr. Baker now identifies the Rose as a form of R. centifolia, the sweetest of all Roses, and the parent of our Moss and Cabbage Roses. The seeds were brought to England by Mr. William Simpson, who gathered them while on a sketching tour in Persia on behalf of the *Illustrated London News*. How long the original bush has been on the poet's grave is not known, but its flowers are double and rose-pink in color.

London. *W. Watson.*

Plant Notes.

Passiflora manicata.

TO a person from the eastern states visiting for the first time the gardens of Santa Barbara, California, no other plant appears more striking and remarkable than the red-flowered Passion-vine, which may be often seen climbing into the tops of the tallest Eucalypti—that is, to the height of fully a hundred feet—or draping arbors and outbuildings with masses of its dark green foliage thickly studded in the spring with the deep scarlet flowers.

This magnificent plant is the Passiflora manicata of botanists, and a native of Peru, where it was discovered by Humboldt nearly a century ago, and of the Andes of Ecuador and New Granada. More than fifty years ago it was introduced into the gardens of Europe by the German collector Hartweg, who found it growing in hedges in the neighborhood of the city of Loxa.

Difficult to manage and shy of displaying its beautiful flowers in northern greenhouses, Passiflora manicata long ago made itself at home in the gardens of the Riviera, as it has in those of Santa Barbara, where it grows with astonishing vigor and rapidity, although individual plants are inclined to be short-lived—a matter of comparatively little importance, perhaps, as seeds are produced in profusion and young plants grow so fast that at the end of two or three years they have usually outgrown their quarters.

Passiflora manicata produces nearly terete branches clothed, like the petioles, the under surface of the leaves, the stipules, bracts and exterior of the perianth, with soft pale pubescence. The leaves are thick and firm, three-lobed to about the middle, finely serrate, dark green on the upper and pale on the lower surface, and are borne on stout petioles an inch in length, and marked with three or four dark glands; the stipules are an inch in diameter, ovate, deeply toothed, concave and clasping. The rigid peduncles are about two inches long, raising the flowers well above the foliage. The bracts at the base of the flower are ovate, acute, serrate, membranaceous and free or united from the base upward to the middle. The tube of the flower is about half an inch long, and inflated and ten-lobed at the base; the limb is three to four inches in diameter, bright scarlet, with a double crown, the outer at the mouth of the tube composed of numerous rows of dark blue hairs, the inner at the top of the inflated base of the

perianth. The fruit is egg-shaped, about an inch and a half long, deep yellow-green, and hangs on a slender stipe; it is covered with a thick skin and contains numerous large seeds surrounded by thin watery pulp.

A flowering branch and a fruit of Passiflora manicata is reproduced from a drawing made by Mr. Faxon in our publishing a portrait of a young plant of the California Fan Palm, Washingtonia filifera (see vol. vi., page 535).

The manner in which Passiflora manicata reached California appears to be unknown, but whoever it was who first had the happy inspiration of planting it there certainly deserves well of the state.

Fig. 44.—Passiflora manicata.—See page 264.

illustration on this page. The habit of the plant as it grows in California is displayed in the illustration on page 267, which represents a young specimen covering an observatory in the garden of Mr. Hugh D. Vail, one of the pioneers of Santa Barbara horticulture, whose garden has already furnished us with an opportunity of

ROSA GIGANTEA.—None of the plants of this species which we have seen in the United States have yet borne flowers, but Mr. E. D. Sturtevant writes that a plant flowered in his garden near Los Angeles, California, in March and April. The plant was received from Kew three years ago, and has made several shoots twenty feet long. The flowers, which

were borne sparingly on one-year-old growths, were from three to three and a half inches in diameter and were of a milky color, not so purely white as those of the Cherokee Rose. The size of the flowers was something of a disappointment, as they had been described as attaining a diameter of six inches in their native country. This particular plant, however, has been allowed to produce many shoots from the base instead of being trained to a single stem, and Mr. Sturtevant thinks that when this is done and the plant has grown older its flowering will be more satisfactory. It is growing in a soil of stiff clay, and has had little care or cultivation.

Indigofera decora.—This is a half-shrubby little plant, which is now bearing spikes of snow-white flowers three or four inches long in the season when such flowers are most welcome. It is a most desirable plant for the rockery in midsummer, as it is dwarf and low, the foliage a clear light green, and it keeps flowering for at least a month. It would also be an admirable plant for the front of a shrub-border or any other position where a low compact growth is wanted.

Ligustrum Ibota—This Privet, from north China and Japan, which was figured in this journal (vol. vi., page 425), is certainly one of the best exotic shrubs which have been introduced into our gardens for many years. It is beautiful as a single specimen; beautiful when massed on a hill-side, as it is in the Arnold Arboretum; beautiful in a mixed shrubbery, and, in short, it is almost invaluable in ornamental gardening. Its long, arching branches give it a character altogether distinct from other Privets. The pure white flowers are borne on pendulous clusters and have a long and slender corolla-tube, and at this season appear in great profusion. The foliage is good, and turns to a dark rich color in autumn, while the dark purple fruit, with a bluish bloom, gives the plant additional interest. It will probably attain a height of eight to ten feet in this country, and it does not seem to get scraggly with age, for, although it flowers when it is very young, it flowers still more abundantly as it becomes more mature. Large sprays of it in flower are very graceful when used for decorative purposes. It is not only perfectly hardy here, but seems to take so kindly to our climate that it will probably become naturalized as the common Barberry has in New England.

A Double Ceanothus.—Our common Ceanothus Americanus, or New Jersey Tea, has begun to flower in this latitude, and its light airy flowers at the end of its leafy shoots make it an attractive plant, although it is one of the commonest of those found along the road-side thickets. A double-flowered variety, which was received from Mr. Lemoine under the name of C. hybridus flore pleno, is now blooming in the Arnold Arboretum. It seems to be perfectly hardy, and has the good foliage of our New Jersey Tea, and will probably endure drought as well as our native plant. But, in addition to this, it is much more floriferous and bears larger heads of flowers, which are slightly tinged with pink, and, altogether, seems to be an interesting addition to the low shrubs which bloom at this season.

Rhododendron arborescens. — This beautiful southern Azalea, which was figured for the first time in Garden and Forest, vol. i., page 401, has been planted to some extent during a few years past, but it is still not yet nearly as well known as its merits deserve. It is by no means a new plant, as it was introduced into English gardens more than three-quarters of a century ago, but it was probably lost soon after, and for years it was hardly known in gardens until it was distributed among many shrub collections in this country and abroad through the agency of the Arnold Arboretum. The white or pink-tinged flowers are set off by bright scarlet stamens and pistils, and are deliciously fragrant. It is the latest of the Azaleas to bloom, and although it is not found in a wild state north of Pennsylvania it is perfectly hardy as far north as New England. The plant needs no special treatment and flowers every year.

Cultural Department.

Notes on Trees and Shrubs.

THE species of Philadelphus, or Mock Orange, as generally found in gardens, seem to have hybridized to such an extent that it is not always easy, and, indeed, is often impossible, to specifically classify them. While there are not half a dozen well-defined species which have been introduced into gardens and cultivated, the varieties or forms offered by nurserymen are commonly very puzzling, and too often plants with different names from various sources turn out to be practically the same.

The species most generally seen in cultivation is probably the common Mock Orange, Philadelphus coronarius, a native of parts of south Europe and of Asia, including Japan. Over this wide range several botanical varieties have been created, but they do not vary greatly from the type, or as much as the horticultural hybrids. The other species in cultivation are all natives of North America. P. inodorus, P. grandiflorus and P. hirsutus are natives of our southern states; P. Lewisii and P. Gordonianus are indigenous in the Rocky Mountain region, while the curious small-leaved and small-flowered P. microphyllus comes to us from the region of New Mexico, Arizona and Colorado.

Where two or more of these species are grown together and blossom at about the same time there is reason to believe that natural hybridization frequently takes place, and intentional hybridization has been sometimes practiced. The species of Philadelphus generally yield seeds in abundance, and these freely germinate under favorable conditions, so that seedling plants of Philadelphus often become a trouble and must be treated as weeds. They will usually flower in three or four years after the germination of the seeds.

The flowers of P. coronarius are smaller than those of some of our native species, but they are earlier. Plants grown from seed from the Botanic Garden at St. Petersburg, Russia, received under the name of P. coronarius Schrenkii, prove about the earliest blossoming of all, although one or two others are almost equally early. They generally begin to open about the first week in June. Like all the flowers of this species, they are strongly fragrant. They expand an inch or a little more in diameter, and are light straw-colored rather than pure white. A plant which came as seed from the Jardin des Plantes, at Paris, under the name of P. coronarius ledifolius, is not to be distinguished from it.

Much more beautiful, though apparently belonging to the same species, is a plant labeled P. speciosus, from the Rochester nurseries of Ellwanger & Barry. The first flowers open only two or three days later than the earliest sort; they are fragrant and about an inch and three-quarters in diameter, with broad, nearly pure white petals. Except that they are several days later in flowering, plants received from the Parsons nurseries, at Flushing, Long Island, under the names of P. gracilis and P. magnificus, seem essentially the same as the P. speciosus from Rochester, so that in the collection they may be regarded as simply duplicates.

A plant of P. speciosus from the Flushing nurseries differs in flowering a little later, in having large, handsome, pure white flowers, which expand two inches in diameter and which have little or no odor. With the exception of the last-named, all the plants mentioned apparently belong to the P. coronarius group, and they are all characterized by a slender-branched, broad-spreading form, rather than the stouter-branched, stiffer, more erect and taller habit of one or more other groups in common cultivation.

Philadelphus grandiflorus, received as such and grown from seed collected in Ohio, has become fully twice as tall as P. coronarius, and it not infrequently reaches a height of twenty or more feet. Its stiff erect stems are not so well covered with foliage on the lower portion as are the more drooping branches of P. coronarius. In its blossoming, P. grandiflorus is quite as desirable as P. coronarius, its almost snow-white flowers being produced in great abundance regularly every season. The blossoms average about an inch and a half in diameter, have large rounded petals and are odorous. The calyx-lobes and under sides of the leaves are usually more or less covered with distinct pubescence or hairs, while in P. coronarius the calyces are usually glabrous, or nearly so. P. grandiflorus is later in blossoming, often being still in good full bloom when all blossoms have fallen from the various forms of P. coronarius.

Philadelphus pubescens, from Flushing, and P. Columbianus, from Rochester, cannot be distinguished for horticultural purposes from the P. grandiflorus in the Arboretum collection.

A plant labeled P. latifolius, from Flushing, appears to be the same, except that it is a day or two later in flowering, being now (June 25th) in about its fullest bloom.

Quite as late as this is a plant labeled Philadelphus undulatus, from Kew; it has medium-sized fragrant flowers which never more than half-expand, the petals keeping an open bell-shaped position.

A distinct Mock Orange in the collection is Philadelphus hirsutus, the seed of which was received from Tennessee. This has a stiff, erect habit of growth and is intermediate in time of flowering. The leaves are large, and the flowers, which expand from an inch to an inch and a half, are of a very pale yellowish or straw color and nearly scentless.

About the latest species to blossom is Philadelphus Lewisii, which, in the last week of June, is in its best condition, with all the buds not yet opened. The stems and branches are more slender than those of P. coronarius, the leaves are small, but abundant, and the flowers are pure white and expand about an inch in diameter. The petals are thin and delicate and ovate in outline. The small size of the blossoms is more than compensated in their abundance, from eight or ten to twenty delicately fragrant blossoms being common on the branchlets.

Under the names of Philadelphus Falconerii and P. Zeyheri, the Arboretum has received from the Parsons nurseries at Flushing an interesting and anomalous Mock Orange, the origin of which is not known, and which cannot well be referred to as a form of any species in cultivation. It is a vigorous shrub, with rather small narrow leaves and narrow boat-shaped petals, which do not spread out horizontally, but remain more or less bell-formed, although the flower has a general star-like appearance. The calyx-lobes are narrowly pointed and quite glabrous. The flowers are slightly fragrant, and usually three or five are borne on a branchlet. It is altogether so very different from any other form in cultivation that it may be considered quite an acquisition.

A somewhat similar, but much inferior, plant was raised from seed sent from Paris as Philadelphus laxus. There are so-called double-flowering forms in cultivation, but they are not beautiful and not generally satisfactory. A yellow-leaved variety or form of P. coronarius is now well known, and is desirable in all gardens where hardy variegated or colored foliaged shrubs are wanted. When leafing in early spring it is often mistaken for a flowering Forsythia at a little distance.

While it is not to be regarded as a showy or altogether satisfactory plant in this climate, the delicate and graceful little Philadelphus microphyllus is sure to give pleasure by its pretty and sweet strawberry-scented flowers. It is so different from its congeners that it is not always at once recognized as a "Syringa," to use a popular name commonly applied to the Mock Oranges, but which botanically and properly should be restricted to the Lilacs.

Arnold Arboretum. *J. G. Jack.*

Injury from Overpruning.

IT would astonish any experienced orchardist to note the way in which the average farmer prunes his fruit-trees when he is once convinced that something must be done in this direction. Before such conviction comes to him he generally is of the opinion that to prune is to lose just so much fruit as the removed branches might be expected to bear for several years at least. But if some one in whom he has confidence succeeds in convincing him that there will be as much gained in size as is lost in numbers, and especially if his attempts to sell his fruit have been met with complaint at its small size, he may take up the saw and axe. In that case he may commonly be expected to use these implements with the fury of a Sioux brave on the war-path.

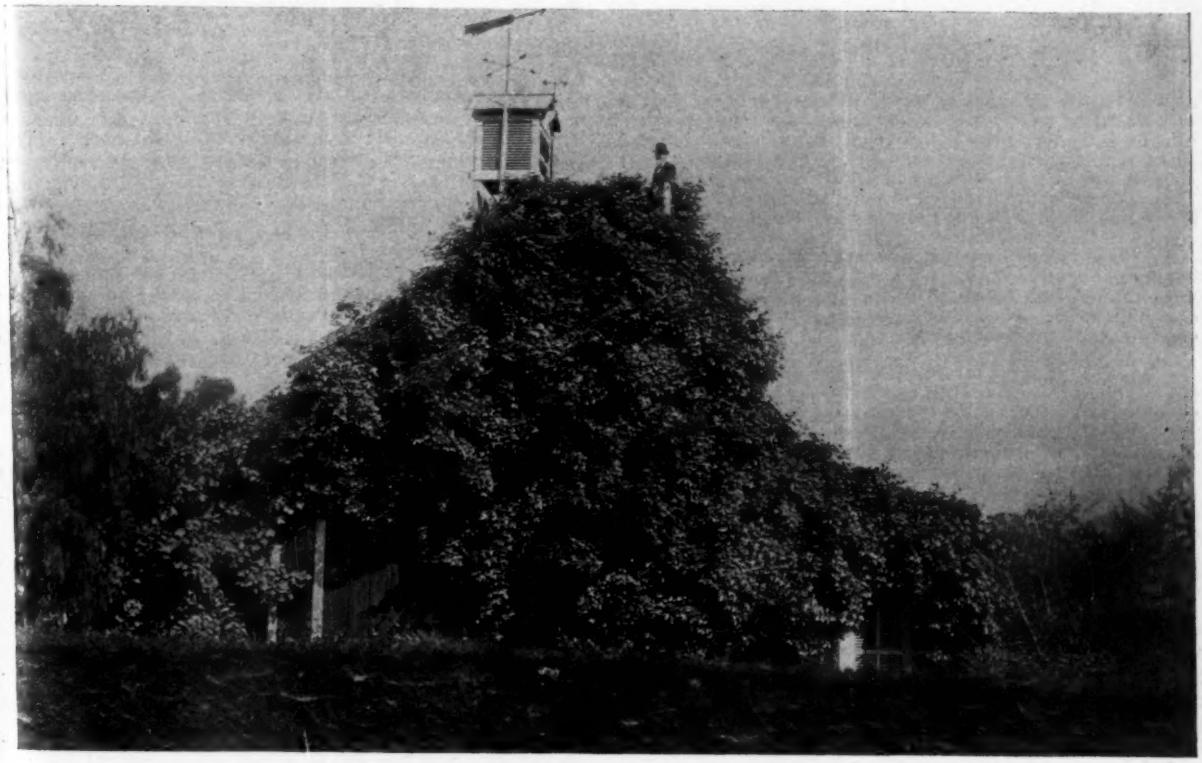

Fig. 45.—Passiflora manicata, in Santa Barbara, California.—See page 264.

I have just been looking over an orchard which was pruned last year in this woodchopper's style. The remark of one of the neighbors, after seeing the results, to the effect that the pruner must have been short of fire-wood, was a natural one. The trees were uniformly "pruned up"—that is, the lower limbs were taken off, and very little thinning done to let in air and light among the upper branches. Where limbs were taken off by the saw, stubs several inches long were left, while with the axe the cut was just as it happened. In neither case was any precaution used to prevent a removed limb from taking with it a considerable strip of bark. The wounds were not painted or otherwise protected.

But what has surprised the owner most (and it puzzled me some at first) is that while the "remains" of this orchard, in common with all Apple-trees this year, bloomed very freely,

almost no fruit has set, and the trees are now bare of anything but leaves. New branches are starting out everywhere from the ground up, and it is evident that all the vitality of the trees is being expended to repair the loss of wood. Since noting this, I have also observed a few trees in my own orchards, both Pears and Apples, which have dropped their young fruit, and in these cases it has been as a sequence of pruning last year, though it was done with moderation. This impresses upon me anew the importance of paying more heed to the proper forming of the heads of our fruit-trees by penknife pruning and disbudding, followed up with judgment and care all through the spring and summer. Shock is as pernicious to the vegetable organism as to that of men and animals, from the surgical point of view.

Newport, Vt. *T. H. Hoskins.*

Sub-irrigation in Greenhouses.

SUBIRRIGATION in greenhouse work is receiving considerable attention, and the good results which have followed its use wherever it has been tried warrant further experiments. During last winter, in order to test the matter in a small way, without expense, a very simple scheme was hit upon which served the purpose admirably. Cementing the bottom of the bed to make it water-tight, as is commonly recommended, was dispensed with, and the only precaution taken was to double-board the bottom in such a way that the boards mismatched. It is doubtful whether there is any advantage in having the bottom absolutely water-tight, since the soil may then become so thoroughly saturated as to be unfavorable to the best development of the plant. The additional apparatus consisted of two old paint-kegs and a piece of worn-out hose. A hole was bored in the bottom of each keg, so that the thread-end of a hose union could be screwed into it, making a water-tight joint. These kegs were set at the end of the bed just a little above the level of the top of the soil. Small wedge-shaped cuts were made in the hose about three inches apart on alternate sides to allow the water to escape. The hose was coiled about the bottom of the bed in such a way that there were four lines running the length of it, and each end was attached to one of the kegs. Water could be poured into both kegs and enter the hose from each end.

At the first watering too much water was given. The soil did not begin to show moisture on the top until it was much too wet beneath, and the bed had to stand a week or more before the soil dried out, so that it could be used for planting. The ultimate results, however, were wholly satisfactory in every way. The ordinary soil of this section of Nebraska is not well adapted to greenhouse work. It is too heavy and soggy when wet, inducing fungi, and unsatisfactory results generally. Previous to this time there had been much injury from Lettuce mildew, and the lower leaves have been destroyed as fast as the plant could produce new ones at the centre. Planted on this subirrigated bed this trouble almost entirely disappeared, and a fine crop of Lettuce was grown.

This method of watering applies the water where it is most needed, and keeps the top reasonably dry, which is a great aid in preventing some of these fungus attacks. Subirrigation certainly promises to be the most satisfactory method in many lines of vegetable work at least, and it is likely to be used extensively. Moreover, no great expense is necessary in fitting the beds for it. One-inch wrought-iron pipe can be utilized to good advantage in conducting the water if it can be cheaply drilled for letting the water escape, as it no doubt can be. The bottom of the beds double-boarded with comparatively cheap lumber, or, at most, laid in coal-tar, and the outfit will be complete.

University of Nebraska. *Fred W. Card.*

Correspondence.

Hardy Rhododendrons.

To the Editor of Garden and Forest:

Sir,—Many of the plants in a large and long-established collection of Rhododendrons in my garden are unsatisfactory. In some the habit is open and straggling; in others the foliage is badly scorched in early spring; others lose their flower-buds in cold winters; and others produce small trusses of flowers of poor washed-out colors. The collection is planted in deep moist peaty soil, so that the plants never suffer from drought, which I believe is more destructive to them than severe winter cold, and is well protected from the cold north-west winds which often blow here in February and March.

It is probable that I do not cultivate the best varieties. I shall be much obliged to you if you will print in Garden and Forest a list of the most approved varieties of the Catawbiense hybrids, with such information about each as you care to give.

Middletown, Conn. *J. C.*

[The following varieties have long been cultivated in the neighborhood of Boston, and of their hardiness in that climate there seems little question. A collection of these varieties would give practically the entire range of colors yet produced by the flowers of these plants, with the exception of the light ones with dark blotches on the upper lobes of the corolla. Many varieties of this particular race are exceedingly beautiful, and often very showy; none of them, however, have yet proved very hardy or satisfactory in our gardens. The list of varieties which can be relied upon contains:

Album elegans: light blush, marked with straw-color, fading white, very free-flowering. This produces erect branches, which sometimes grow to the height of twenty or twenty-five feet; it is, therefore, useful to place in the middle of a large bed, where the naked bases of the stems can be covered by lower-growing varieties.

Album grandiflorum: light blush, fading white. This is a strong-growing, vigorous, free-flowering variety of good habit. The foliage is excellent, and, altogether, A. grandiflorum is the best white or nearly white-flowered hardy Rhododendron available for our climate.

Alexander Dancer: light rose, with lighter centre. This variety, when well grown, produces as large, or larger, flowers and trusses than any other hardy Rhododendron with which we are acquainted; the foliage is excellent, but the plant lacks compactness of habit, often producing long sprawling branches.

Atrosanguineum: blood-red. One of the very earliest, as it is one of the hardiest, Rhododendrons, showing in the brilliant color of its flowers strong traces of the blood of the Indian Rhododendron arboreum, which appears more or less clearly in all the scarlet-flowered Catawbiense hybrids. This variety has the disadvantage of flowering so early that the flowers have faded before most of the other varieties are in bloom.

Caractacus: rich purplish crimson. This is one of the best Rhododendrons in the size and compactness of the trusses, in the size and color of the flowers, in habit, hardiness and foliage.

Charles Bagley: cherry-red. This is a late-flowering variety with a well-formed truss of brilliant flowers, with excellent habit and foliage.

Charles Dickens: bright scarlet. This is one of the best of the scarlet-flowered Rhododendrons, with good habit and foliage, although the flowers are smaller than those of several other varieties. It has the disadvantage of flowering before the varieties with light-colored flowers, with which it would otherwise make a good contrast.

C. S. Sargent: rich crimson. This produces large compact trusses, and has few superiors in the size and color of the foliage and in habit.

Cœrulescens: very pale lilac-blue or blush. This is a distinct variety, owing to the peculiar color of the flowers; it is a plant of rather loose habit, but free-growing, with long lustrous leaves, showing some traces of the blood of Rhododendron maximum.

Delicatissimum. This is a hybrid between Rhododendron maximum and some of the Catawbiense race of hybrids. The flowers are white, suffused with pink; the habit is excellent, and the foliage is large and unusually lustrous. This is one of the most beautiful of all hardy Rhododendrons, and has the advantage of flowering later than most of the Catawbiense varieties.

Everestianum. This has usually been considered the best Rhododendron for American gardens. No variety excels it in hardiness, in habit, and in its power to produce large crops of flowers year after year. The trusses are well shaped and compact, and the flowers are rosy-lilac, spotted with yellow and crinkled on the margins. To

many people their decided purple shade of color is not altogether pleasant; and it is difficult to group the plants satisfactorily with varieties with red or dark-colored flowers.

Gloriosum. A hardy free-blooming variety of rather loose and unattractive habit. The beauty of the flowers, which in color resemble those of an Apple-tree, is not surpassed by that of the flowers of any other Rhododendron, although the trusses are rather loose, and the individual flowers are not large or perfectly regular in outline.

Hannibal. A variety of good habit, with small trusses of rose-colored flowers.

F. L. Ames. This produces pale flowers surrounded with a broad band of rosy pink; the individual flowers and the trusses are large and well shaped, and the foliage is unusually large and fine. Young plants, the only ones which have yet been tried in this country, as this is a new variety, show an inclination to a loose, rather ungainly habit.

H. W. Sargent. This produces enormous trusses of crimson flowers and is the latest of all the varieties with dark-colored flowers. It is very hardy and the foliage is excellent; it lacks, however, good habit and usually appears as a sprawling open-headed plant, unattractive when not in flower.

Lady Armstrong. This variety produces pale rose-colored spotted flowers. It is very prolific, perfectly hardy and altogether one of the most beautiful and desirable of hardy Rhododendrons.

Lady Gray Egerton. Although a comparatively new and little-known variety, this is probably one of the best of the hardy Rhododendrons, with good foliage and habit and immense trusses of large, well-shaped, light mauve or silvery blush flowers.

Mrs. C. S. Sargent. This is one of the most promising of the newer varieties with the habit and foliage of Everestianum; the flowers, however, are bright pink with a large yellow blotch and crinkly edges; they are of good shape and produced in large compact trusses.

Mrs. Harry Ingersol. Deep rosy-lilac, with a conspicuous greenish or yellow blotch on the upper lobe of the corolla.

Mrs. Milner. A variety with rich crimson flowers in compact trusses, excellent foliage and compact habit.

Purpureum grandiflorum. This is the best of the purple-flowered varieties. No Rhododendron has a better habit, grows more rapidly or produces larger and darker-colored leaves or more numerous trusses of well-shaped flowers; their color, however, is disliked by many people, and it is difficult to group plants of this variety in a mixed collection; and, as far as possible, they should be kept by themselves. It is one of the latest varieties to bloom.

Roseum elegans. With rosy purple flowers. This is one of the best Rhododendrons in habit and foliage, although to some people the purplish shade of the flowers is disagreeable.

Sefton. This produces enormous trusses of dark maroon flowers and excellent foliage. It is the darkest-flowered hardy Rhododendron, and when in flower one of the most conspicuous and striking; it shows rather a tendency to an open growth and bad habit.—ED.]

An Aquatic Garden.

To the Editor of GARDEN AND FOREST:

Sir,—The increasing interest in aquatic plants, and their collection and cultivation, is bringing into notice differences and distinctions, even among well-known species, which have until lately escaped attention. Again, the natural result of the cultivation of many varieties in the same waters tends to hybridization, the results of which are beginning to appear, though few of these new hybrids have been distributed. These points were especially impressed on me a few days ago in looking over William Tricker's collection of aquatic plants at Clifton, New Jersey. Mr. Tricker this season has connected himself with Mr. S. C. Nash, whose reclaimed swamp and aquatic garden were illustrated in GARDEN AND FOREST in vol. v., pp. 498–99. Here is probably the largest outdoor heated tank in the country, with pits and accommodations for four plants of Victoria regia. Three plants only are being grown this season, but they are especially interesting as they are each of distinct habit.

Victoria Randii is recognized among growers as a distinct variety, both in its smaller leaves and the distinct color of the flowers. It does not seem to be known, however, that there are marked variations in what is supposed to be the normal form. Such variations are to be seen in the two plants now growing, especially in the difference of formation of the rims. One plant has leaves fifty inches in diameter with no sign of a rim; the other plant has sharply turned-up edges, even in a very young stage. The latter plant has sharply reflexed spines, like fish-hooks, on the stems, while the spines on the other variety are straight. There are also minor differences of color which do not seem important. I have read some sharp controversy between capable observers in the horticultural press regarding rim-forming. The writers were probably growing different varieties and correctly reported what they saw, with no suspicion as to all the facts.

Owing to the cold season, the sash had not yet been removed from the Victoria pits when I saw them, ten days ago, and the other tropical Nymphæas were backward, though a few plants of N. Zanzibarensis were in flower. Euryale ferox does not receive protection here, and was growing strongly in the Victoria tank. The heated water of this tank somewhat hurries the Nelumbiums, which were showing their first buds. In one of the cold ponds was a large mass of plants showing many very double white flowers with broad-pointed petals. Resting on the water, these flowers were very striking in the sunlight, and distinct from anything previously seen. On close examination I found that they bore nearly forty broad petals, and were similar to fine forms of N. alba, with the distinct fragrance of N. odorata. They had no trace of pink, such as usually occurs in the petals of N. alba candidissima, yet, notwithstanding this and their fragrance, one would hesitate to pronounce the variety other than a specially double and bold form of N. alba. Nymphæas are peculiarly modified by conditions of cultivation, both in form and coloring, and these modifications are very puzzling.

There were various seedlings under trial, the best of these being a large clear rosy one of perfect color, which it seems to retain until the flower withers. All the better-known hardy Nymphæas were, of course, in full flower, N. tuberosa showing a special capacity for covering space with large leaves and abundant handsome large flowers. N. gracilis is an interesting day-flowering Nymphæa with narrow pointed segments. It is usually white, but some seedlings of a pure light blue were in flower. Mr. Tricker is having success with the Lace-plants, Ouvirandra fenestralis, whose curious reticulated leaves are among the most wonderful objects in the vegetable kingdom. It seems to flower while yet very small.

The various tanks and plantations at Clifton are kept up to their usual attractive standard by Mr. Nash, who spares no expense on his favorite hobby, which, as has been said before, has changed an unsightly swamp into a public benefaction. The abundant water-space furnishes also a field for experiments on a large scale, from which important results may be expected.

Elizabeth, N. J. *J. N. Gerard.*

Orchids in New York.

To the Editor of GARDEN AND FOREST:

Sir,—A fortnight ago the Cattleyas in the well-known collection of Mr. Hicks Arnold, in this city, were making a remarkable display. Of two superb specimens of Cattleya Arnoldiana, a rare hybrid raised by the Messrs. Sander, one was carrying four fully developed blooms, and the other six blooms on two spikes. The white form of C. intermedia, another exceedingly rare plant, had two strong spikes. Such white forms of C. Mossiæ as Reineckiana, Wagnerii and Wagnerii ampliata were all in full bloom, and the last one was especially interesting on account of the admirable form of its sepals and petals and its deep orange throat. The best white variety of C. Gaskelliana was also in bloom in this collection, showing two fine flowers, and the distinctly mottled variety of C. Mossiæ known as Hardyana was just opening four fine blooms.

Among the Cypripediums such striking varieties as the American hybrid Josephianum, C. dilectum, C. macropterum, C. niveum magnificum and C. leucorrhodum, and many more were all growing in the healthiest condition, and together presented a spectacle which any intelligent lover of Orchids would go a journey to inspect.

South Orange, N. J. *Joseph A. Manda.*

Notes.

Work upon the new park at Corlear's Hook, in one of the most crowded parts of our city, is immediately to be begun, upon plans elaborated by Mr. Calvert Vaux.

The Raisin Growers' Association of Fresno, California, have decided that no raisins shall be sold except on board the cars at points of shipping. This regulation is meant to insure uniform packing and to permit no inferior samples to go out, and to prevent any such cut in prices as that which brought disaster to the industry last year.

It is good practice to pick promptly all the ripe or decayed fruit from Cucumbers and Tomatoes. Even when seed is wanted, no more than one fruit should be allowed to ripen on a plant from which a continuous supply is expected. New fruits cease to set if the old ones are allowed to ripen, and the prompt removal of fruit before it matures will keep the plants growing and yielding much longer.

We have already given some account of that weed known as the Russian Thistle, or Russian Cactus, although it is not related either to the Thistles or the Cacti. Botanically it is Salsola kali tragus, and those who wish to learn all the known facts in relation to its history, together with the means available for its eradication, can find them in Bulletin No. 15, lately published by the Division of Botany, United States Department of Agriculture. The bulletin has been prepared by Lester Hoxie Dewey, Assistant Botanist of the Department, and it is illustrated with maps and figures.

The people of southern Colorado are preparing petitions asking that Congress shall reserve the region called the Mancos Cañon as a public park. This region is remarkable for its natural features, and contains the most interesting remains of the Cliff-dwellers which exist in the United States. If not soon protected, its archæological interest, at least, will be greatly impaired. Many of the houses are in very inaccessible positions, one of the finest occupying a narrow ledge of rock 600 feet above the bottom of the cañon; nevertheless, their inaccessibility does not protect them from the ravages of curiosity-hunters.

A Pennsylvania correspondent of the *Rural New Yorker* mentions among the merits of the Japan Quince as a hedge-plant, that it does not naturally grow much taller than the proper height for a hedge, and that it quickly reaches that height; cattle will not browse it or break it; it does not sucker much; its foliage has a rich color, which is held all the season through; it blooms every year, and when in flower it is beautiful; it is readily propagated by roots cut into inch lengths from any old plant in the autumn and kept in damp sand until the spring; it has great endurance and longevity; its stems are continually renewed from the collar, and it is easily trimmed and kept into tidy shape.

One of the most curious trees in Germany stands on the left bank of the River Oder, in Ratibor, Silesia. It is a Maple, at least one hundred years old, which has been twisted and cut into a sort of circular two-storied house. A flight of steps leads up to the first level, where the branches have been gradually woven together so that they make a firm leafy floor; above this is a second floor of smaller diameter, formed in the same way; and the ends of the branches have been woven into solid walls, and cut so that eight windows light each of the apartments. Below the first floor, at the level of the second, and at the top of the tree the boughs have been allowed to grow out naturally, while the intermediate walls and the edges of the window-like openings are kept closely clipped.

A correspondent of the *North-western Lumberman* states that last winter, in St. Louis, he found that while white poplar was selling slowly and there was no demand for yellow pine, and hardly any for cypress, cottonwood was in active request. The lower grades of cottonwood are used for packing boxes, vegetable crates, barn boards, sheathing, etc., and the upper grades are largely made into wagon-boxes, where the toughness of the wood renders it specially valuable, while clear stock under twelve inches wide serves for flooring, ceiling, casing and other purposes where pine is commonly used. When properly dried, cottonwood is said to be equal to poplar for many purposes, and because of its lightness, the ease with which it is worked, and the way in which it takes and retains paint, it answers for many uses where pine was once considered indispensable.

In Europe tobacco-pipes are made principally of two kinds of wood, one is Cherry and the other is the so-called Briar. This latter is really a Tree Heath, Erica arborea. It is called by the French Bruyère, which has been corrupted into Briar, and great quantities of it are used in Austria and Italy in making pipes. Now the *Agricultural Gazette*, of New South Wales, states that the root and trunk of a small tree called Beef-wood (botanically Hakea leucoptera) is being largely used and is highly prized by smokers as a material for pipes. It is a Proteaceous plant, related to the Honeysuckles and Grevilleas, and its common name is derived from the color and general texture of the wood. It also goes under the name of the Needle-bush, from the prickly character of its leaves. It is a small tree or large shrub which rarely attains a trunk diameter of more than nine inches and grows in the arid interior of the country.

The Italian-Swiss agricultural colony at Asti, Sonoma County, California, as described in a recent issue of the *Pacific Rural Press*, is a prosperous settlement in the beautiful Russian River valley. The organization was effected in 1881, and fifteen hundred acres of warm hill-side and rich valley land are now planted in vineyards and orchards, and additional tracts are being cleared and planted. Many of the plants were imported direct from Italy, and now the Olive of Lucca and the Riviera, Orange-trees from the Mediterranean, Fig-trees from Naples, Barberino di Val d'Elsa and Vines from Italy, thrive side by side in the colony. Thrift and good work are everywhere evident, and experienced viticulturists and horticulturists follow the same general methods practiced in Italy. The buildings at Asti are among the best of their class, and include a concrete storage-house for wine with a capacity of more than 1,000,000 gallons.

During the past week plums, which have been coming from California in great abundance and variety as well as in admirable condition, have been selling at wholesale for as high as five dollars a half-crate. Apricots from the same state have also been beautiful in color and in good condition, but they sell slowly, while cherries, with the exception of the variety Royal Anne, have sadly fallen off in quality. The rapid growth which all fruit and vegetables have made during the past hot weather is shown by the fact that huckleberries are now coming from New Jersey, which but a fortnight ago were coming from the Carolinas, and green corn from the same state is in the market. The best strawberries used in this city are now picked as far north as Oswego, and next week they will be coming in from Maine. Currants have rarely been as abundant and cheap as they now are, and they can be bought for from two to two and a half cents a pound. Hart's Late oranges are still coming from Florida, and sell at from $4.00 to $5.00 a box in spite of the abundant receipts of good Rodi oranges from Sicily, which are the standard summer fruit.

Commenced in 1848 by the late Filippo Parlatore, the "Flora Italiana" has at last been completed, with the exception of a part of the seventh volume, the concluding part of the tenth and final volume having been issued in April of the present year, although it is Professor Teodoro Caruel who has completed it, Professor Parlatore having died several years ago. The Flora of Italy is one of the few modern Floras of large countries or of extensive botanical regions which has come so near completion. The two notable exceptions are Bentham's "Flora of Australia" and Boissier's "Flora of the Orient." The other great floras of recent times still remain in a fragmentary condition. Gray finished only half of the "Flora of North America" and Sir Joseph Hooker has still at least one more volume before him before his "Flora of British India," which has pretty constantly engaged his attention for the last forty years, will be completed. Oliver's "Flora of Tropical Africa" and Harvey & Sonder's "Flora of Southern Africa" are still incomplete, while the death of the author stopped Cossons' "Flora of Algeria" in its early stages. The "Flora of Brazil," commenced by Martius many years ago, the first part having appeared in 1846, is still appearing with considerable regularity, and there is some probability that it may now be completed within a reasonable time. Floras of Mexico and of central America, of Chili and Peru, of Argentina, of China and Japan, and of Europe as a whole are still needed. During the last century a good deal has been learned of the characters, relationships, uses and distribution of the plants that cover the earth's surface; but our knowledge of plants, however, is still fragmentary and often unsatisfactory, and there is still a vast amount of work to be done by morphological and economic botanists, in spite of the statement which has become fashionable of late in some quarters, that there is no real work left in botany for any one but the physiologists.